INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

Foster Wheeler Environmental
P.O.Box 504
Parker Road
Chester, NJ 07930
Attn: Mr. Tom Hawthorne

Date: July 08, 1994

NJ Lab Certification ID#: 12064

Job No.: 129887

P.O. Number:

This is the Certificate of Analysis for the following samples:

Client Project ID: Combe Fill South
Date Received: 06/24/94
Number of Samples: 14
Sample Type: SLUDGE/LIQUID

I. Introduction

Samples were labeled as follows:

SAMPLE IDENTIFICATION	LABORATORY #
OPS-49	F4-06-277-01
OPS-81	F4-06-277-02
OPS-82	F4-06-277-03
OPS-83	F4-06-277-04
OPS-84	F4-06-277-05
OPS-85	F4-06-277-06
OPS-86	F4-06-277-07
OPS-87	F4-06-277-08
OPS-88	F4-06-277-09
OPS-89	F4-06-277-10
OPS-90	F4-06-277-11
OPS-91	F4-06-277-12
OPS-93	F4-06-277-13
OPS-95	F4-06-277-14

Reviewed and Approved:

Eileen S. Nemeth
Project Manager

511776

Company: Foster Wheeler Environmental
Date: July 08, 1994
Client Job No.: 129887

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000
Work Order: F4-06-[illegible]

II. QA/QC

The results presented in this report were determined in accordance with EPA/NJDEPE approved methodologies except as noted in the optional sample narrative located on the second page of Section III.

In the presented analytical data, 'ND' or 'U' indicates that the compound is not detected at the specified limit. See Appendix A for other commonly used abbreviations.

III. Analytical Data

The analytical results for this report are presented by analytical test. Each set of data will include sample identification information, the analytical results, and the appropriate detection limits. Detection limits may vary due to factors arising from concentration/dilution of samples.

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EDISON, NJ
(908) 225-2000

Company: Foster Wheeler Environmental
Date: July 08, 1994
Client Job No.: 129887
Work Order: F4-06-277

NARRATIVE

Matrix spike / duplicate recoveries did not meet QC acceptance criteria for AR1016/1260 due to matrix effects. Results were accepted on the basis of blank spike recoveries.

*RPD outside QC limits due to matrix interfernece. Batch acceptance based on blank spike recovery

All samples were compatible when blended (OPS-89, OPS 81-91, OPS-91 and OPS 95-103).

No samples demonstrated any water reactivity.

Company: Foster Wheeler Environmental
Date: July 08, 1994
Client Job No.: 129887

IT ANALYTICAL SERVICES
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(908) 225-2000
Work Order: F4-06-277

SAMPLE ID	OPS-93	OPS-95	
SAMPLED	06/20/94	06/20/94	
TEST			Units
Total Cyanide	Negative	Negative	Observation
Water/Hexane Solubility	Very Soluble	Not Soluble	Observation
Ignitability	>60	>60	Deg F
Organic Peroxide	Negative	Negative	Observation
Oxid./Reduction Pot	420	420	mv
Petroleum Hydrocarbons	38000 [3200]	1200 [160]	mg/Kg
pH	3.0 [0.01-14]	4.2 [0.01-14]	pH Units
Sulfide	Negative	Negative	Observation
Specific Gravity	0.8081	1.1048	

ND indicates the parameter was not detected.
Detection limits are specified in [ ].

Company: Foster Wheeler Environmental
Date: September 01, 1994
Client Job No.: 129887

IT ANALYTICAL SERVICES
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(908) 225-2000
Work Order: F4-06-277

TEST NAME: Pesticides/PCB

SAMPLE ID: OPS-95
SAMPLE DATE: 06/20/94

ANALYSIS DATE: 06/28/94
QC BATCH #: 2299

	Results in ug/Kg	Detection Limit
Aroclor-1016	ND	1700
Aroclor-1221	ND	1700
Aroclor-1232	ND	1700
Aroclor-1242	ND	1700
Aroclor-1248	ND	1700
Aroclor-1254	ND	1700
Aroclor-1260	ND	1700

Surrogates	% Recovery
Tetrachloro-meta-xylene	98

Comments: U or ND indicates compound is not detected at level indicated.
When units are ug/Kg, results are reported on a dry weight basis.

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000

Company: Foster Wheeler Environmental
Date: July 08, 1994
Client Job No.: 129887
Work Order: F4-06-278

IV METHODOLOGY

Requested analyses were performed according to the following methods.

Cyanide - Auto Analyzer Method

The analysis of cyanide is based on EPA, Methods for Chemical Analysis of Water and Wastes, Revision 1983, Method 335.3. (Automated Spectrophotometric Analysis)

Ignitability

A flame is introduced to an aliquot of sample at standard temperature and pressure. If the sample burns persistently and vigorously, it is considered to be ignitiable.

Petroleum Hydrocarbons - IR

The analysis of petroleum hydrocarbons is based on EPA, Methods for Chemical Analysis of Water and Wastes, Revision 1983, Method, 418.1. (Infrared Spectrophotometric Analysis)

pH

The analysis of pH is based on Standard Methods, 16th Edition (423). The intensity of the acidic or basic character of a solution at a specific temperature is determined by pH or hydrogen ion activity.

Sulfide

The analysis of sulfide is based on EPA, Methods for Chemical Analysis of Water and Wastes, Revision 1983, Method 376.1. (Titrimetric Analysis)

Specific Gravity

The analysis of specific gravity is based on Standard Methods, 16th Edition (213E). It is determined by comparing the mass of a known volume of the sample at a specific temperature to the mass of the same volume of distilled water at 4 degrees Celsius.

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Company: Foster Wheeler Environmental
Date: July 08, 1994
Client Job No.: 129887
Work Order: F4-06-278

Cyanide

The analysis of cyanide is based on Test Methods for Evaluating Solid Waste Physical/Chemical Method, 3rd Ed. Method 9012. (Automated Spectrophotometric Analysis)

Ignitability

A flame is introduced to an aliquot of sample at standard temperature and pressure. If the sample burns persistently and vigorously, it is considered to be ignitiable.

Petroleum Hydrocarbons - IR

The analysis of petroleum hydrocarbons is based on EPA, Method for Chemical Analysis of Water and Wastes, Revision 1983, Modified Method 418.1. (Infrared Spectrophotometric Analysis)

pH (Soil)

The analysis of pH is based on SW-846, 3rd Edition (9045). An aliquot of sample is diluted and mixed into deionized water. The intensity of the acidic or basic character of the solution at a specific temperature is determined by pH or hydrogen ion activity.

Sulfide

The analysis of sulfide (Methylene Blue Method) is based on Standard Methods, 16th Edition 427B and EPA Method 376.1. (Titrimetric Analysis)

Specific Gravity

The analysis of specific gravity is based on Methods 2710 F, Standard Methods, 17th Edition (213E).

Company: Foster Wheeler Environmental
Date: July 08, 1994
Client Job No.: 129887

IT ANALYTICAL SERVICES
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(908) 225-2000
Work Order: F4-06-278

Pesticides/PCB's

The analysis of pesticides and PCB's is based on Test Methods for Evaluating Solid Waste, SW-846, 3rd Edition, 1986, EPA 3510 and EPA 8080.

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EDISON, NJ
(908) 225-2000

APPENDIX A

DEFINITIONS

ND(U) - Analyte was analyzed for, but not detected. The value given after the ND or U is the detection limit for that compound.

A - The compound denoted with an "A" indicates a suspected aldol condensation product.

B - Indicates the compound was also detected in the blank.

J - Indicates the compound was detected in the sample, but at levels less than the detection limit. Results should be regarded as estimated.

MS - Matrix Spike
MSD - Matrix Spike Duplicate
RPD - Relative Percent Difference
ug/L - Micrograms/Liter
ug/Kg - Micrograms/Kilogram
mg/Kg - Milligrams/Kilogram
%Rec - Precent Recovery
mg/L - Milligrams/Liter
DL - Detection Limit

QUALITY CONTROL WINDOWS

Surrogate Recoveries

GC/MS Volatiles (624, 8240)	Water	Soil
D4-1,2-dichloroethane	76-114	70-121
D8-toluene	88-110	81-117
4-Bromofluorobenzene	86-115	74-121

Surrogate Recoveries

GC/MS SemiVolatiles (625, 8270)	Water	Soil
D5-Nitrobenzene	35-114	23-120
2-Fluorobiphenyl	43-116	30-115
D14-Terphenyl	33-141	18-137
D5-Phenol	10-94	24-113
2-Fluorophenol	21-100	25-121
2,4,6-Tribromophenol	10-123	19-122

Surrogate Recoveries

Pesticides* (608, 8080)	Water	Soil
Tetrachloro-m-xylene	60-150	60-150
Dibutyl chlorendate	24-154	20-150

Surrogate Recoveries

Method 602, BTEX, 8020	Water	Soil
4-Bromofluorobenzene	62-139	62-138

* SW846 allows one surrogate to be outside recovery windows.

Surrogate Recoveries

Method 601 (8010)	Water	Soil
Bromochloromethane	74-121	74-121

Method 8015	Water	Soil
Acetone	68-132	68-132

Surrogate Recoveries

Method 8060**	Water	Soil
Tetrachloro-m-xylene	60-150	60-150
Decachlorobiphenyl	60-150	60-150

Herbicides**	Water	Soil
2,4-DB	60-150	60-150

** Advisory Limits

METALS / WET CHEMISTRY

	Recovery	RPD
Blank Spike	75-125	
Blank Spike Duplicate	75-125	<20%
Matrix Spike	75-125	
Matrix Spike Duplicate	75-125	<20%

	Recovery	RPD
Replicate		<20%
Check Standard	90-110	

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] _____

Project Name Fuel Comb. F.I.S. Project No. Samples Shipment Date 6/23/94

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
						Qualitative Cyanides ✓		
						Qualitative Sulfide ✓		
						Qualitative Organic PC ions ✓		
						Total Petroleum Hydrocarbons ✓		
						PCB Screen ✓		
						Bench Scale Compatibility Blending		
						PER - same all samples		
OPS 81	Green + Pink Solid	6/20/94	Glass	1L	NA			
OPS 82	Green + Pink Solid							
OPS 83	Green Solid							
OPS 84	Green + Cream Solid							
OPS 85	Pink Solid							
OPS 86	Pink Solid							
OPS 87	Green Solid							
OPS 88	Green Solid							
OPS 89	Pink Solid							
OPS 90	Brown liquid/sludge							
OPS 91	Bilayer Liquid Brown/white							
OPS 93	Green Solid							
OPS 95	Black [illegible]							

Yellow Field copy

*See back of form for specific instructions

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

Foster Wheeler Environmental
P.O.Box 504
Parker Road
Chester, NJ 07930
Attn: Mr. Tom Hawthorne

Date: July 08, 1994

NJ Lab Certification ID#: 12064

Job No.: 129887

P.O. Number:

This is the Certificate of Analysis for the following samples:

Client Project ID:	Combe Fill South
Date Received:	06/24/94
Number of Samples:	8
Sample Type:	SLUDGE/LIQUID

I. Introduction

Samples were labeled as follows:

SAMPLE IDENTIFICATION	LABORATORY #
OPS-96	F4-06-278-01
OPS-97	F4-06-278-02
OPS-98	F4-06-278-03
OPS-99	F4-06-278-04
OPS-100	F4-06-278-05
OPS-101	F4-06-278-06
OPS-102	F4-06-278-07
OPS-103	F4-06-278-08

Reviewed and Approved:

Eileen S. Nemeth
Project Manager

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000

Company: Foster Wheeler Environmental
Date: July 08, 1994
Client Job No.: 129887
Work Order: F4-06-278

II. QA/QC

The results presented in this report were determined in accordance with EPA/NJDEPE approved methodologies except as noted in the optional sample narrative located on the second page of Section III.

In the presented analytical data, 'ND' or 'U' indicates that the compound is not detected at the specified limit. See Appendix A for other commonly used abbreviations.

III. Analytical Data

The analytical results for this report are presented by analytical test. Each set of data will include sample identification information, the analytical results, and the appropriate detection limits. Detection limits may vary due to factors arising from concentration/dilution of samples.

Company: Foster Wheeler Environmental
Date: July 08, 1994
Client Job No.: 129887

IT ANALYTICAL SERVICES
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(908) 225-2000
Work Order: F4-06-278

NARRATIVE

All samples were compatible when blended (OPS-49, OPS-81-91, OPS-93, OPS95-103).

No samples demonstrated any water reactivity.

Company: Foster Wheeler Environmental
Date: July 08, 1994
Client Job No.: 129887

IT ANALYTICAL SERVICES
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(908) 225-2000
Work Order: F4-06-278

TEST	SAMPLE ID / SAMPLED	OPS-99 06/20/94	OPS-100 06/20/94	OPS-101 06/20/94	UNITS
Total Cyanide		Negative	Negative	Negative	Observation
Water/Hexane Solubility		Soluble	Soluble	Not Soluble	Observation
Ignitability		20	20	20	Deg C.
Organic Peroxide		Negative	Negative	Negative	Observation
Oxidation/Reduction Pot		510	520	520	mv
Petroleum Hydrocarbons		110000 [8000]	250000 [16000]	140000 [16000]	mg/Kg
pH		3.0 [0.01-14]	4.0 [0.01-14]	4.0 [0.01-14]	pH (Units)
Sulfide		Negative	Negative	Negative	Observation
Specific Gravity		0.9319	1.0039	0.9237	

ND indicates the parameter was not detected.
Detection limits are specified in [].

Company: Foster Wheeler Environmental
Date: July 08, 1994
Client Job No.: 129887

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000
Work Order: F4-06-278

TEST NAME: **Pesticides/PCB**

SAMPLE ID: **OPS-99**
SAMPLE DATE: **06/20/94**

ANALYSIS DATE: 06/28/94
QC BATCH #: 2299

Results in	ug/Kg	Detection Limit
Aroclor-1016	ND	930
Aroclor-1221	ND	930
Aroclor-1232	ND	930
Aroclor-1242	ND	930
Aroclor-1248	3500	930
Aroclor-1254	ND	930
Aroclor-1260	ND	930

Surrogates	% Recovery
Tetrachloro-meta-xylene	110

Comments: U or ND indicates compound is not detected at level indicated.
When units are ug/Kg, results are reported on a dry weight basis.

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EDISON. NJ
(908) 225-2000

Company: Foster Wheeler Environmental
Date: July 08, 1994
Client Job No.: 129887
Work Order: F4-06-278

IV METHODOLOGY

Requested analyses were performed according to the following methods.

Cyanide - Auto Analyzer Method

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Ignitability

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Petroleum Hydrocarbons - IR

The analysis of petroleum hydrocarbons is based on EPA, Methods for Chemical Analysis of Water and Wastes, Revision 1983, Method, 418.1. (Infrared Spectrophotometric Analysis)

pH

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Company: Foster Wheeler Environmental
Date: July 08, 1994
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Sulfide

The analysis of sulfide (Methylene Blue Method) is based on Standard Methods, 16th Edition 427B and EPA Method 376.1. (Titrimetric Analysis)

Specific Gravity

The analysis of specific gravity is based on Methods 2710 F, Standard Methods, 17th Edition (213E).

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000

Company: Foster Wheeler Environmental
Date: July 08, 1994
Client Job No.: 129887
Work Order: F4-06-278

Pesticides/PCB's

The analysis of pesticides and PCB's is based on Test Methods for Evaluating Solid Waste, SW-846, 3rd Edition, 1986, EPA 3510 and EPA 8080.

IT ANALYTICAL SERVICES
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APPENDIX A

DEFINITIONS

ND(U) - Analyte was analyzed for, but not detected. The value given after the ND or U is the detection limit for that compound.

A - The compound denoted with an "A" indicates a suspected aldol condensation product.

B - Indicates the compound was also detected in the blank.

J - Indicates the compound was detected in the sample, but at levels less than the detection limit. Results should be regarded as estimated.

MS - Matrix Spike
MSD - Matrix Spike Duplicate
RPD - Relative Percent Difference
ug/L - Micrograms/Liter
ug/Kg - Micrograms/Kilogram
mg/Kg - Milligrams/Kilogram
%Rec - Precent Recovery
mg/L - Milligrams/Liter
DL - Detection Limit

QUALITY CONTROL WINDOWS

Surrogate Recoveries

GC/MS Volatiles (624, 8240)	Water	Soil
D4-1,2-dichloroethane	76-114	70-121
D8-toluene	88-110	81-117
4-Bromofluorobenzene	86-115	74-121

Surrogate Recoveries

GC/MS SemiVolatiles (625, 8270)	Water	Soil
D5-Nitrobenzene	35-114	23-120
2-Fluorobiphenyl	43-116	30-115
D14-Terphenyl	33-141	18-137
D5-Phenol	10-94	24-113
2-Fluorophenol	21-100	25-121
2,4,6-Tribromophenol	10-123	19-122

Surrogate Recoveries

Pesticides* (608, 8080)	Water	Soil
Tetrachloro-m-xylene	60-150	60-150
Dibutyl chlorendate	24-154	20-150

Surrogate Recoveries

Method 602, BTEX, 8020	Water	Soil
4-Bromofluorobenzene	62-139	62-138

* SW846 allows one surrogate to be outside recovery windows.

Surrogate Recoveries

Method 601 (8010)	Water	Soil
Bromochloromethane	74-121	74-121

Method 8015	Water	Soil
Acetone	68-132	68-132

Surrogate Recoveries

Method 8060**	Water	Soil
Tetrachloro-m-xylene	60-150	60-150
Decachlorobiphenyl	60-150	60-150

Herbicides**	Water	Soil
2,4-DB	60-150	60-150

** Advisory Limits

METALS / WET CHEMISTRY

	Recovery	RPD
Blank Spike	75-125	
Blank Spike Duplicate	75-125	<20%
Matrix Spike	75-125	
Matrix Spike Duplicate	75-125	<20%

	Recovery	RPD
Replicate		<20%
Check Standard	90-110	

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] _____

Project Name FWEI Combe Fill South Project No.

Samples Shipment Date 6/23/91

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
OPS 96	Brown Sludge							
OPS 97	White Solid							
OPS 98	Brown Solid							
OPS 99	Brown liq white Sludge							
OPS 100	Trilayer							
OPS 101	Brown Liquid							
OPS 102	Brown Liquid							
OPS 103	Brown sludge							

22 Total

All full

White to accompany samples Yellow Field copy

*See back of form for special instructions